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IMAGES IN CARDIOLOGY

ECG changes of severe hyperkalaemia

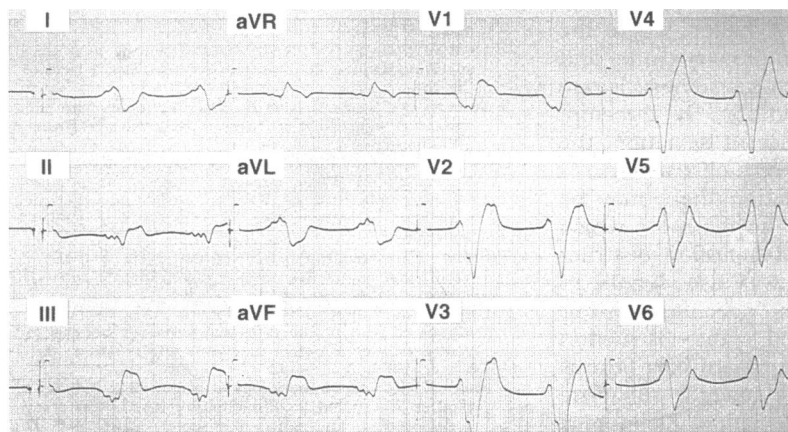


Figure 1 Serum potassium 8.0 mmol/l.

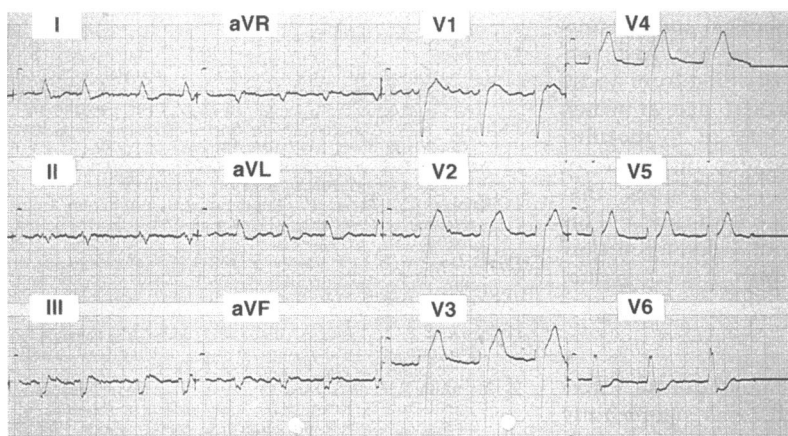


Figure 2 Serum potassium 5.3 mmol/l.

A 71 year old man was admitted after being found collapsed at home. Clinically he was in cardiogenic shock with severely impaired cerebration, gross evidence of cardiac failure, a systolic blood pressure of 50 mm Hg, and a regular pulse of only 42 beats per minute. His initial electrocardiogram is shown (fig 1). As soon as the electrocardiogram was available he was given 10 ml calcium gluconate together with dextrose and insulin. A repeat electrocardiogram performed after these measures was dramatically improved (fig 2). Subsequently, his admission potassium was found to have been greater than 8.0 mmol/l. It had declined to 5.3 mmol/l at the time of the second electrocardiogram. Figure 1 shows extremely broad, bizarre QRS complexes with markedly raised ST segments that can be mistaken for the acute injury current of myocardial infarction. In addition there is no evidence of P wave activity. Such electrocardiographic changes may be the harbinger of ventricular tachycardia, fibrillation, or asystole. It is rare to find such gross electrocardiographic changes. More frequently with lesser degrees of hyperkalaemia there are tall, peaked T waves. Increasing hyperkalaemia, however, leads to a progressive reduction in P wave amplitude, PR prolongation, loss of R waves, and progressive widening of the QRS complex.

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